

Affective Disorders

(for non-clinicians)

Computational Psychiatry Course 2021

Gina Paolini

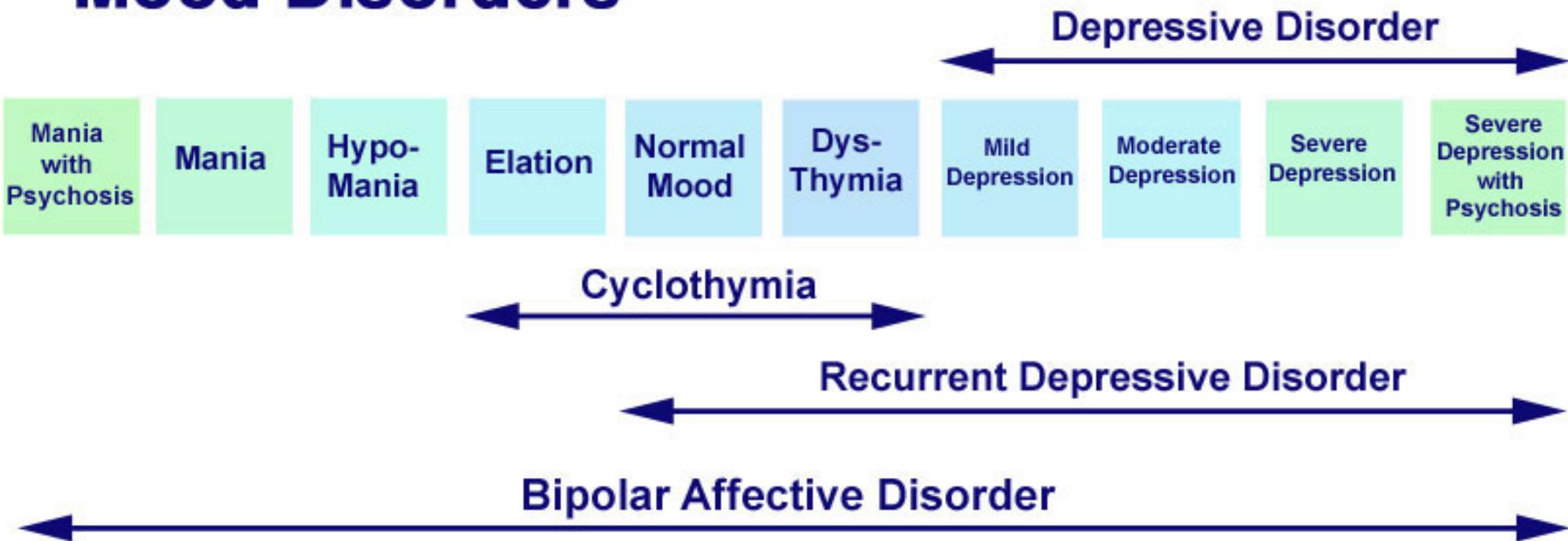
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Universität
Zürich^{UZH}

| ETH zürich

Mood Disorders



COVID-19 and Depression

Forbes

CORONAVIRUS | Aug 25, 2021, 10:38am EDT | 1,863 views

Depression And Anxiety Double In Youth Compared To Pre-Pandemic

Prevalences prior to pandemic

GAD 11.6%

Depression 12.9%

Pandemic

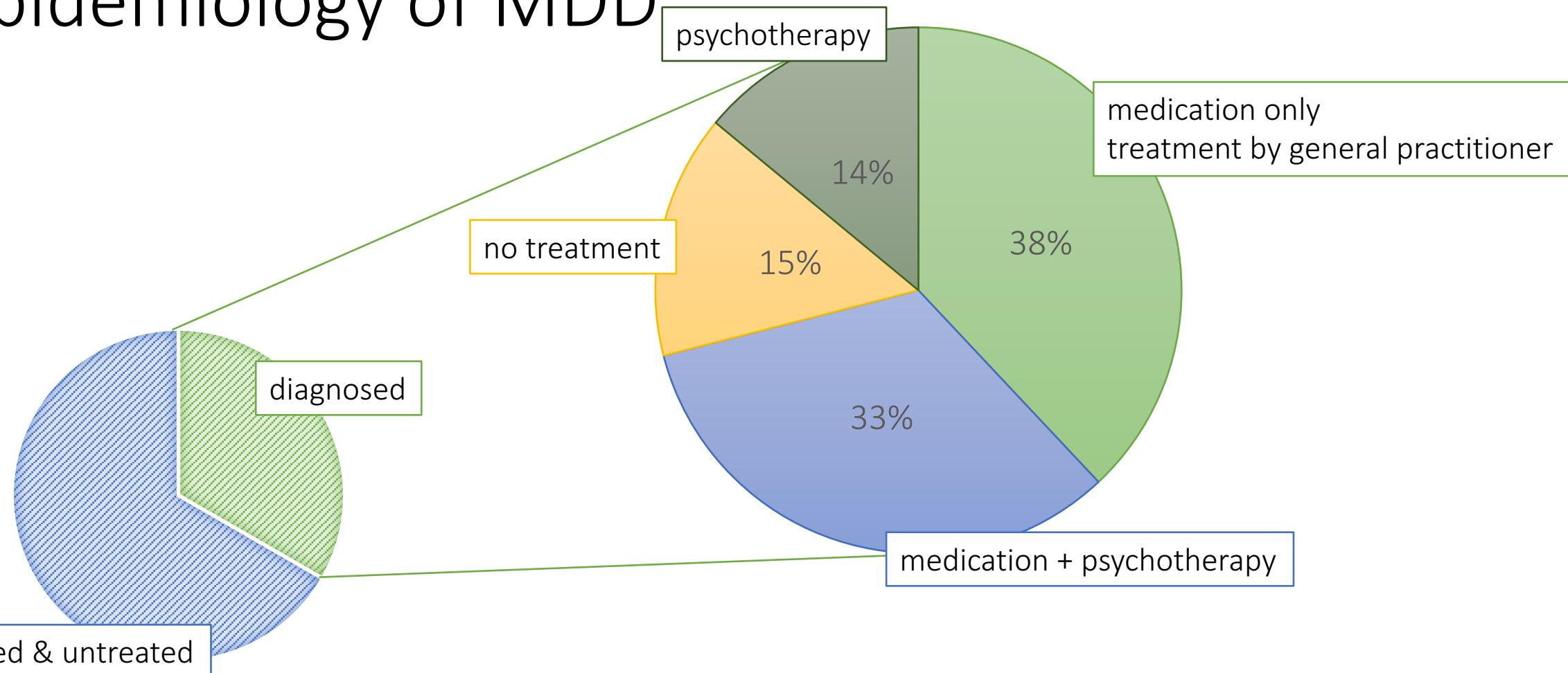
GAD 20.5%

Depression 25.2%

Epidemiology of MDD

- Lifetime prevalence ~ 20% (♂ 12.3% ♀ 25%)
- Average age at onset: 25-35 years
- Suicidality
- Heritability: ~35%
- Risk factors: low socio-economic status, urban (vs. countryside), adverse life events (early/chronic), comorbidities
- Comorbidities of MDD
 - anxiety disorders (20-30%)
 - substance abuse (~20%)
 - personality disorders (up to 50%)

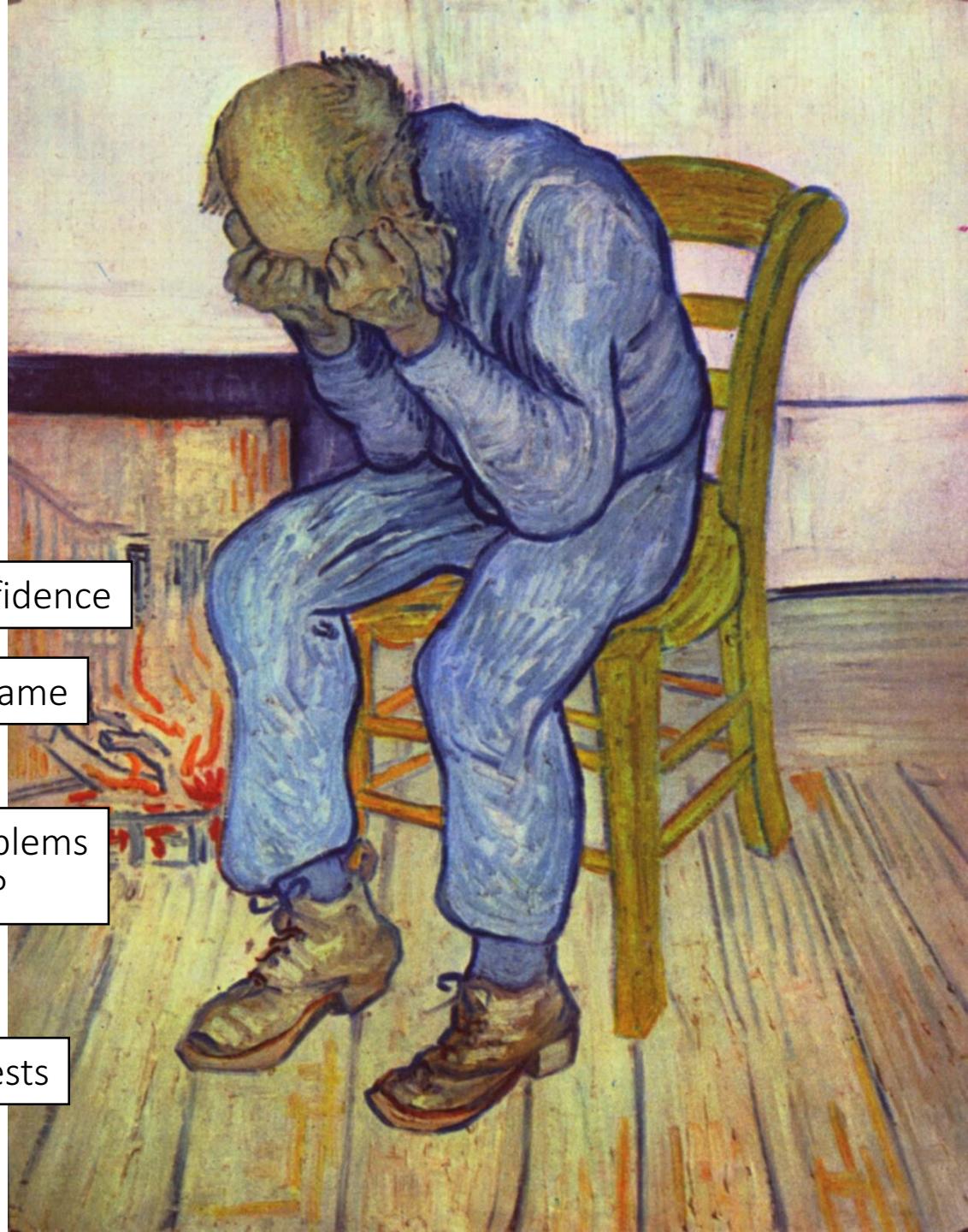
Epidemiology of MDD



Case example: Depression

- Vincent, 40y., computer scientist
- feels exhausted and burned out
- feels physically unfit
- feels incompetent
- ruminating about mistakes he has done at work
- drinks alcohol to fall asleep
- suffers from loneliness, stopped with free time activities

Low mood
Low energy
Low self-confidence
Guilt / self-blame
Sleeping problems
Comorbidity?
Loss of interests



ICD-10 Diagnosis of MDD

Key symptoms	Additional symptoms	Diagnosis
Persistent sadness or low mood	Low self-confidence	F32.- depressive episode
Loss of interests or pleasure	Guilt or self-blame	F32.0 mild
Fatigue or low energy	Suicidal thoughts or acts	F32.1 moderate
	Poor concentration or indecisiveness	F32.2 severe without psychotic
	Agitation or slowing of movements	F32.3 severe with psychotic
	Disturbed sleep	F33.- recurrent depressive disorder
	Poor or increased appetite	F32.0 mild
		F32.1 moderate
		F32.2 severe without psychotic
		F32.3 severe with psychotic
		F33.4 currently in remission

ICD-10 Diagnosis of MDD



Key symptoms

Persistent sadness or low mood

Loss of interests or pleasure

Fatigue or low energy

Additional symptoms

Low self-confidence

Guilt or self-blame

Suicidal thoughts or acts

Poor concentration or indecisiveness

Agitation or slowing of movements

Disturbed sleep

Poor or increased appetite

Min. 2 key criteria, in total at least 6

Diagnosis

F32.- depressive episode

F32.0 mild

F32.1 moderate

F32.2 severe without psychotic

F32.3 severe with psychotic

F33.- recurrent depressive disorder

F32.0 mild

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ICD-10 Diagnosis of MDD

Key symptoms

Persistent sadness or low mood

Loss of interests or pleasure

Fatigue or low energy

Additional symptoms

Low self-confidence

Guilt or self-blame

Suicidal thoughts or acts

Poor concentration or indecisiveness

Agitation or slowing of movements

Disturbed sleep

Poor or increased appetite

Min. 2 key criteria, in total at least 4

Diagnosis

F32.- depressive episode

F32.0 mild

F32.1 moderate

F32.2 severe without psychotic

F32.3 severe with psychotic

F33.- recurrent depressive disorder

F32.0 mild

F32.1 moderate

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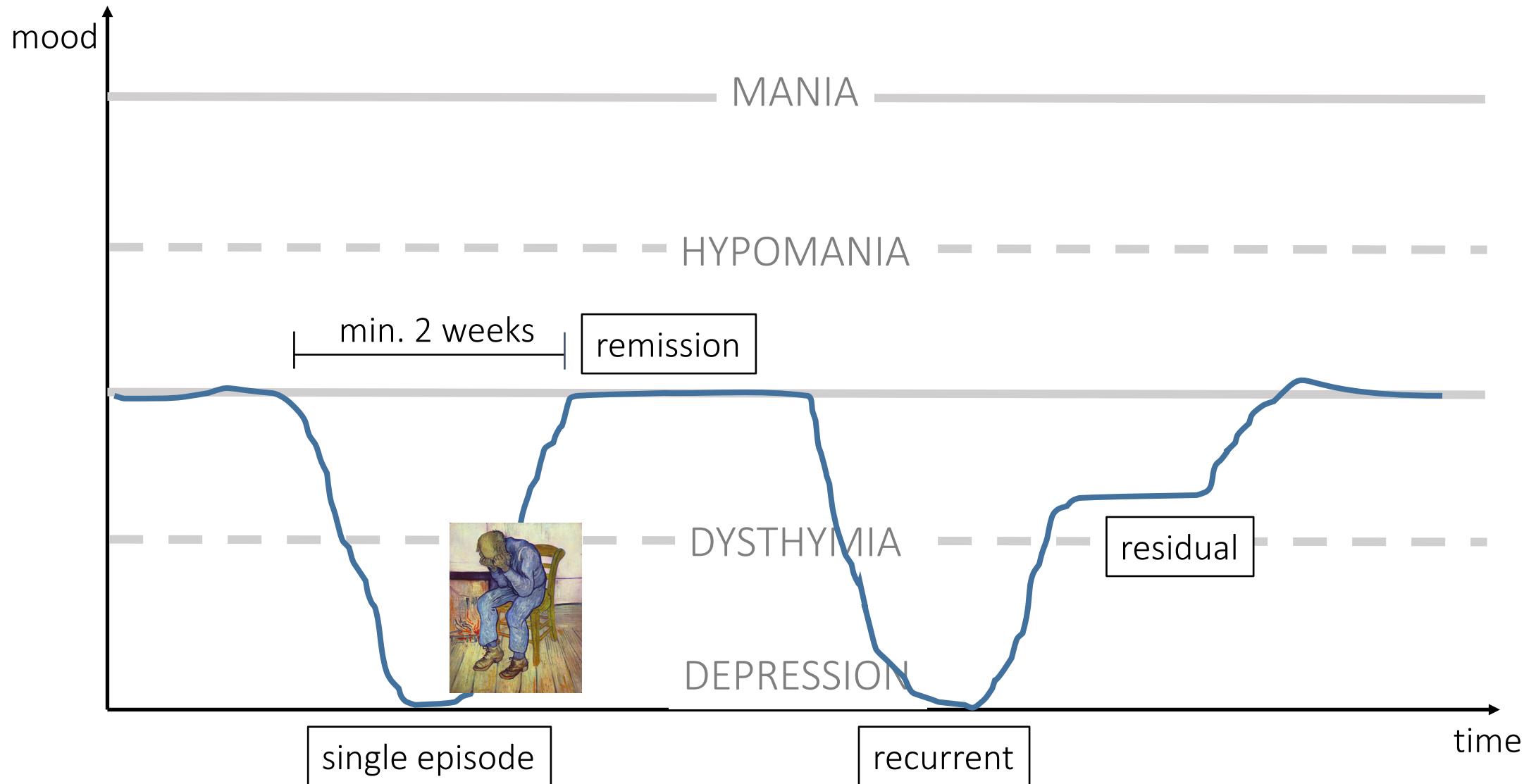
F32.2 severe without psychotic

F32.3 severe with psychotic

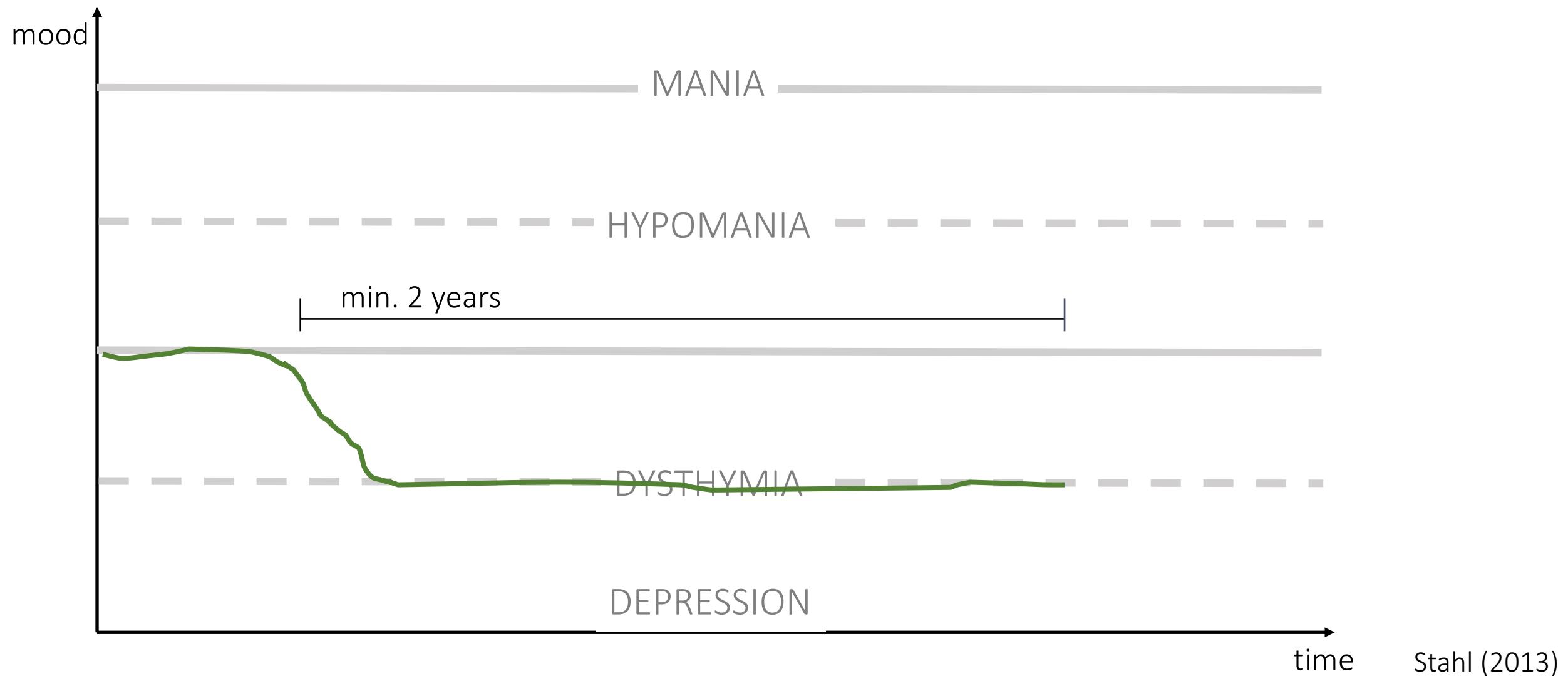
F33.4 currently in remission

All key criteria, in total at least 8

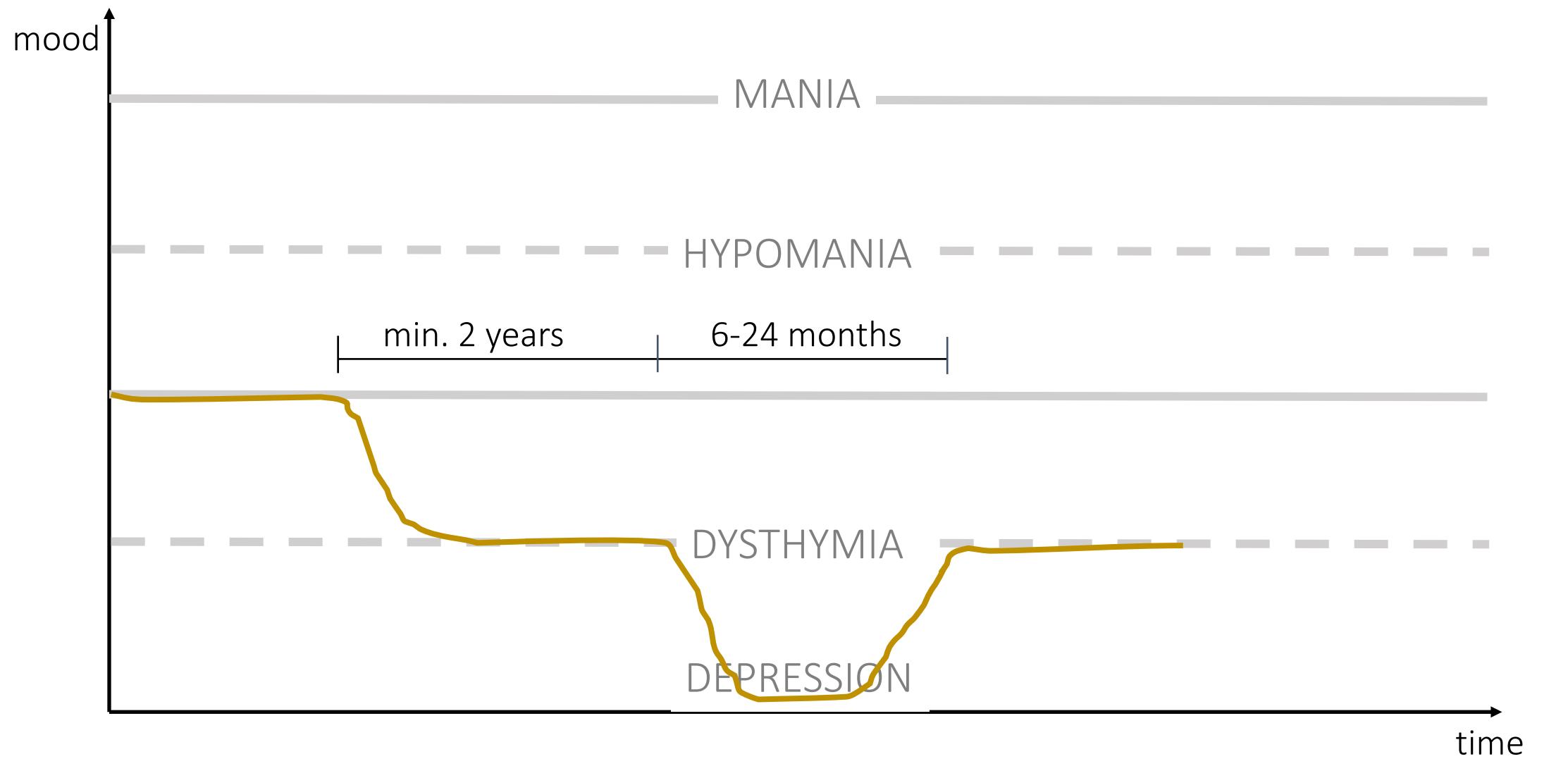
Disease progression: MDD



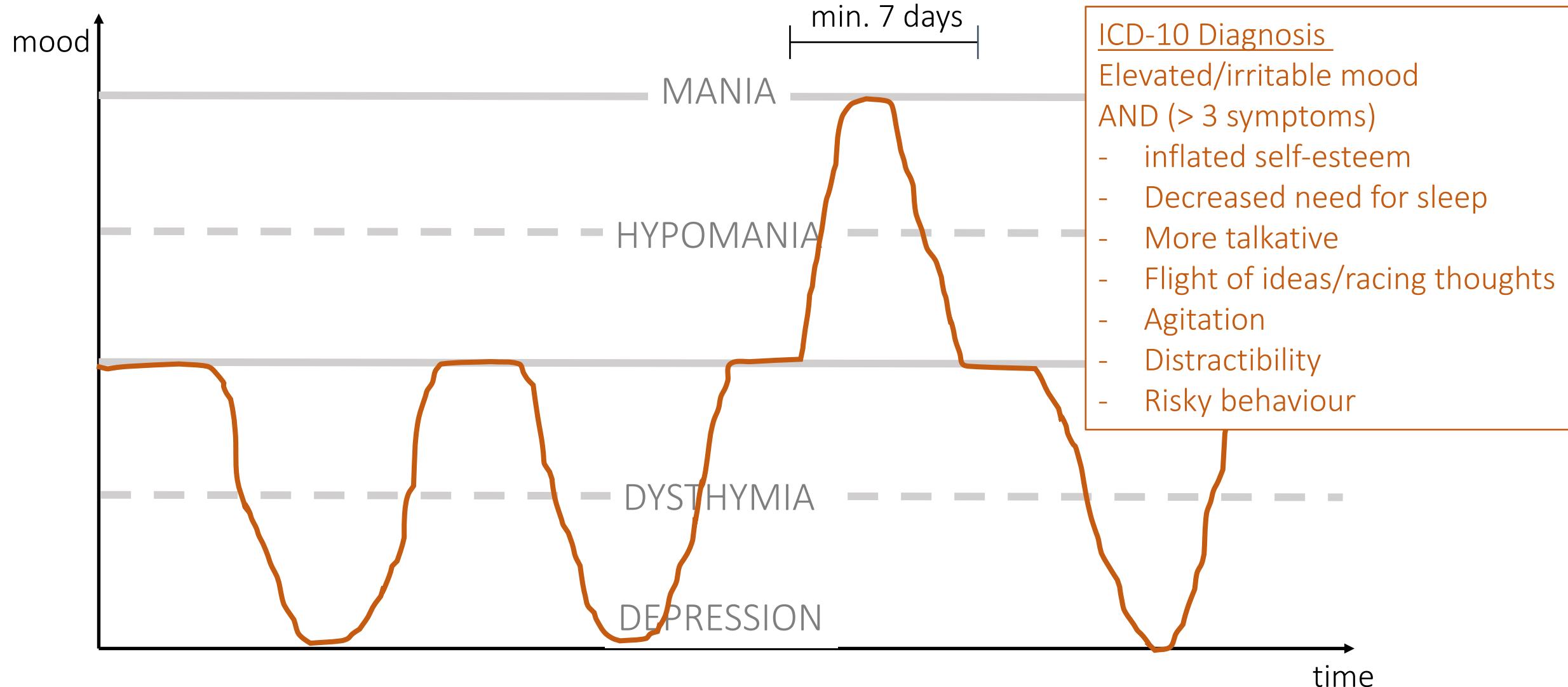
Disease progression: dysthymia



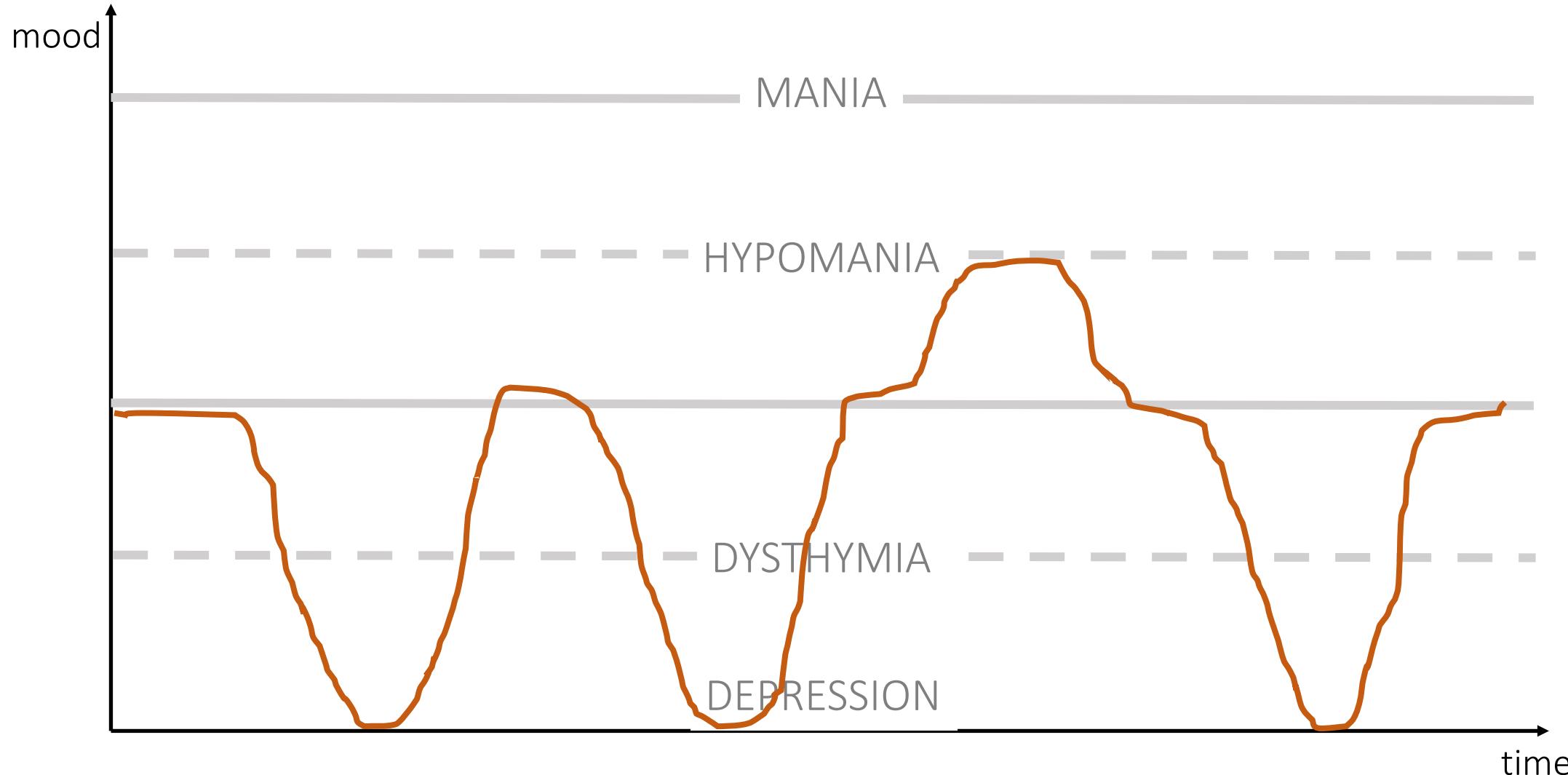
Disease progression: double depression



Disease progression: bipolar-I-disorder



Disease progression: bipolar-II-disorder



Case example: bipolar-II disorder

Robert Schumann (1810-1856, German composer)

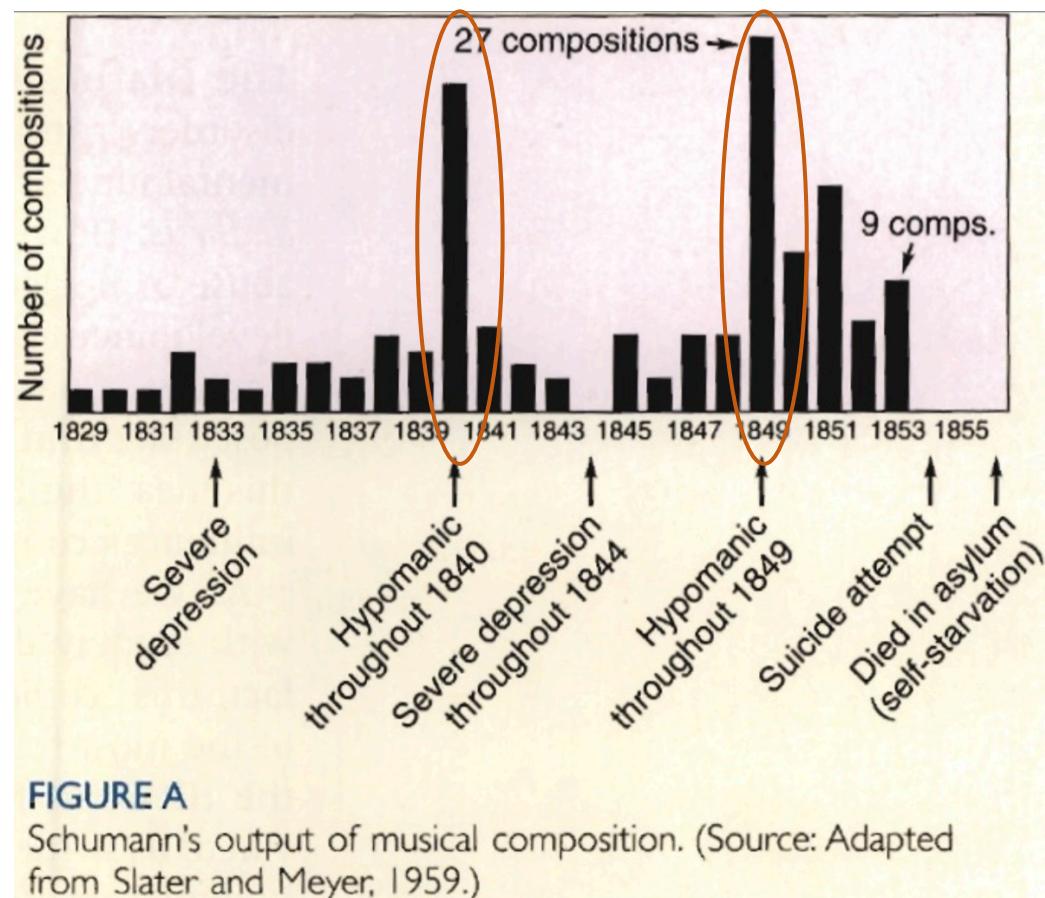
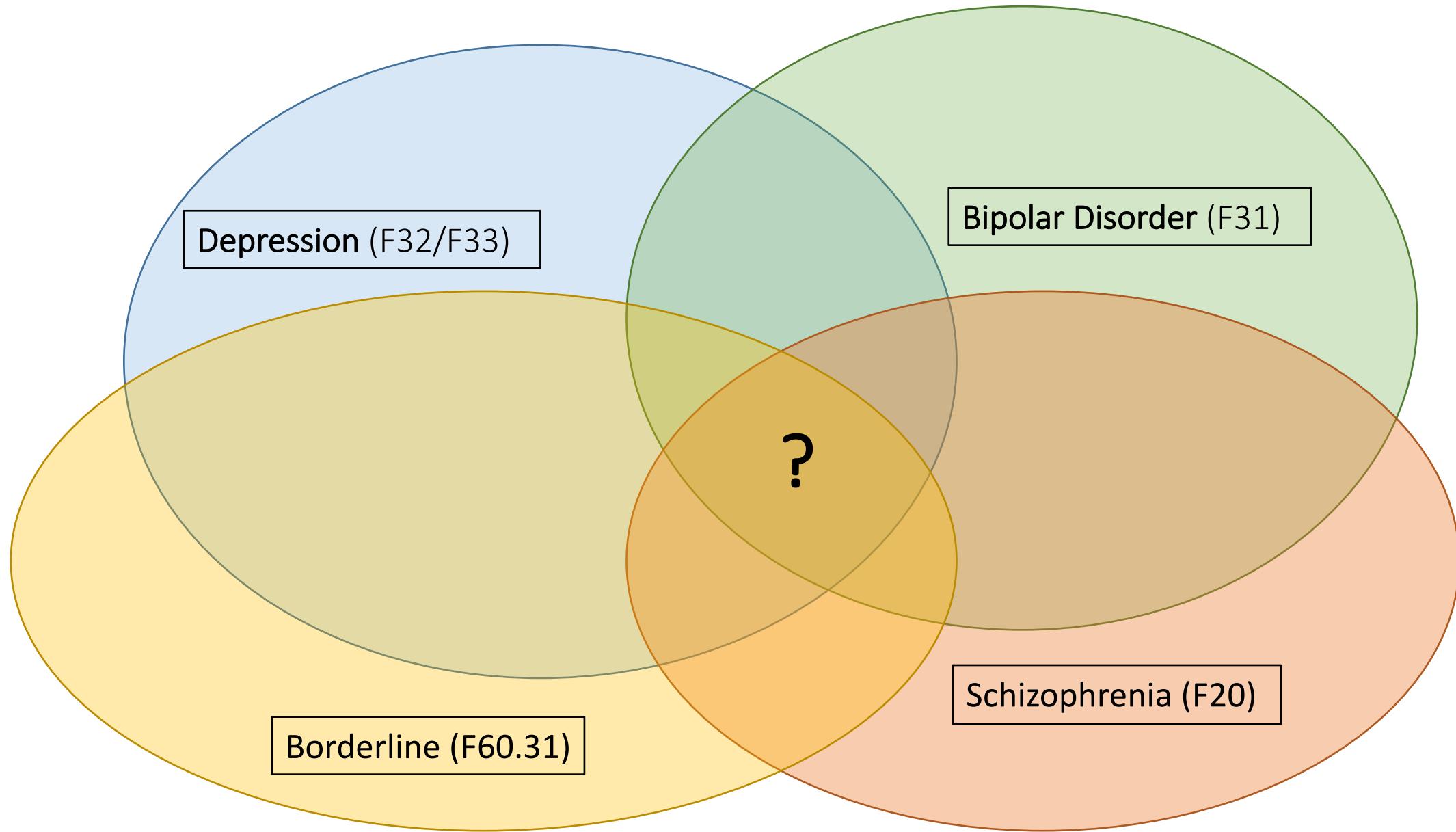


FIGURE A

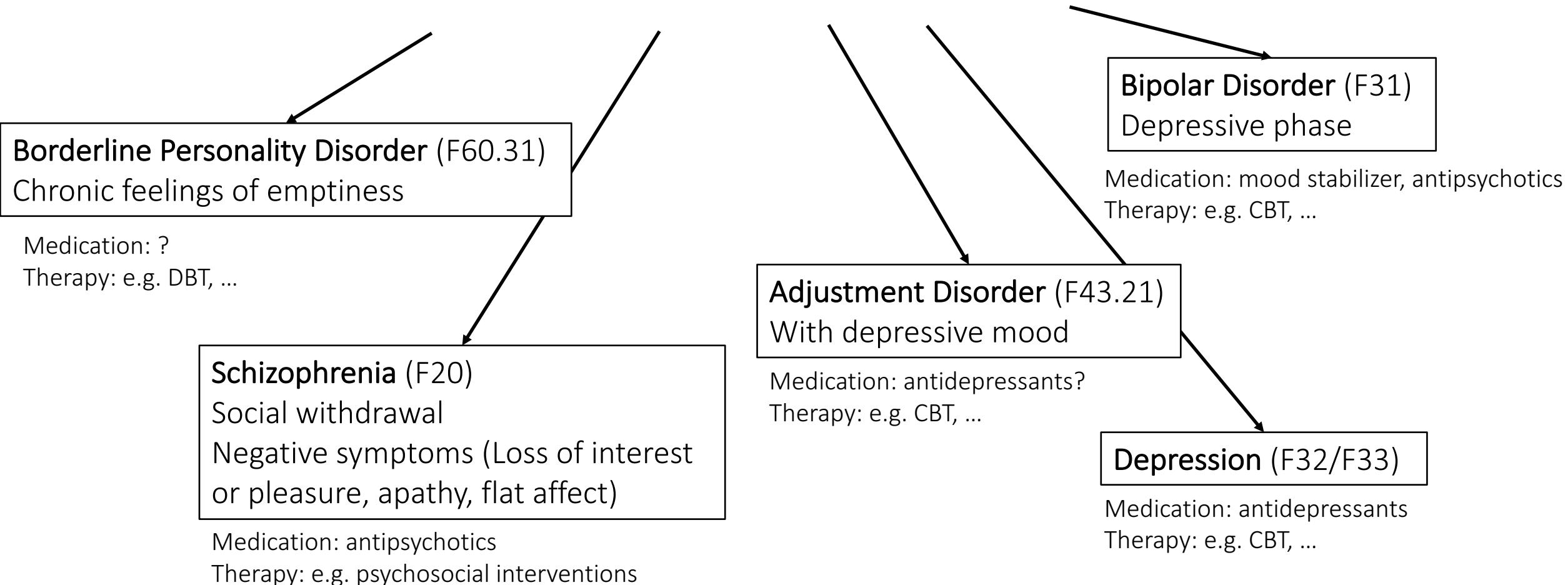
Schumann's output of musical composition. (Source: Adapted from Slater and Meyer, 1959.)

Why do we need a diagnosis?



Differential Diagnosis

= distinguishing a condition from others with similar features



Treatment



Intervention: Psychotherapy and/or medication

Setting: outpatient vs. inpatient



guidelines: DGPPN (Germany), NICE (UK)

Pharmacology: MDD

Selective serotonin reuptake inhibitors (SSRIs)

e.g. fluoxetine, escitalopram
> "serotonin-hypothesis"

Serotonin-noradrenaline reuptake inhibitors (SNRIs)

e.g. duloxetine, venlafaxine

Serotonin-antagonist/Alpha2-antagonist

e.g. mirtazapine

Tricyclic antidepressants (TCAs)

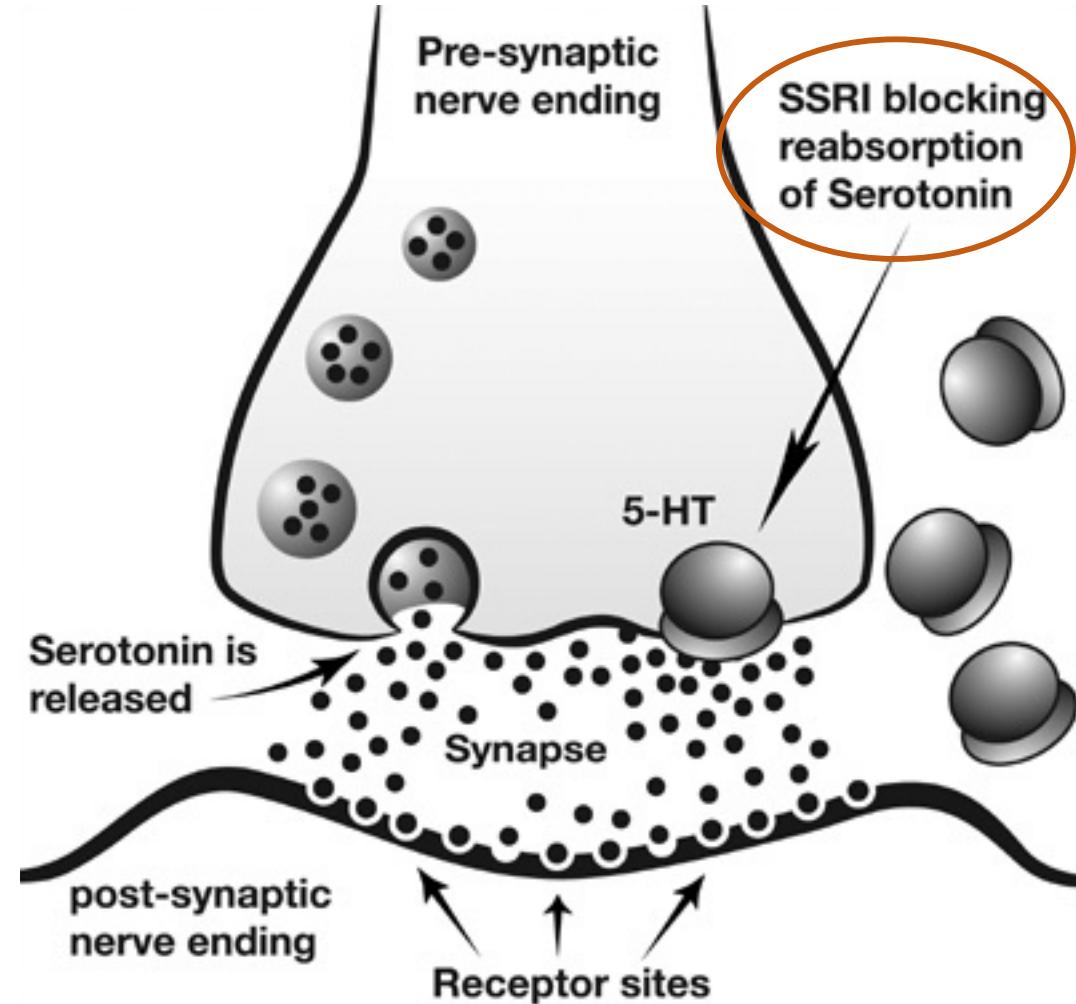
e.g. trimipramine, clomipramine

Monoamine oxidase inhibitors (MAOIs)

e.g. tranylcypromine

Other drugs

e.g. lithium, bupropion, antipsychotics, ketamine, ...



Pharmacology: Bipolar Disorder

Mood stabilizer

e.g. Lithium, Lamotrigine

Antipsychotics

e.g. Haloperidol (esp. acute treatment)

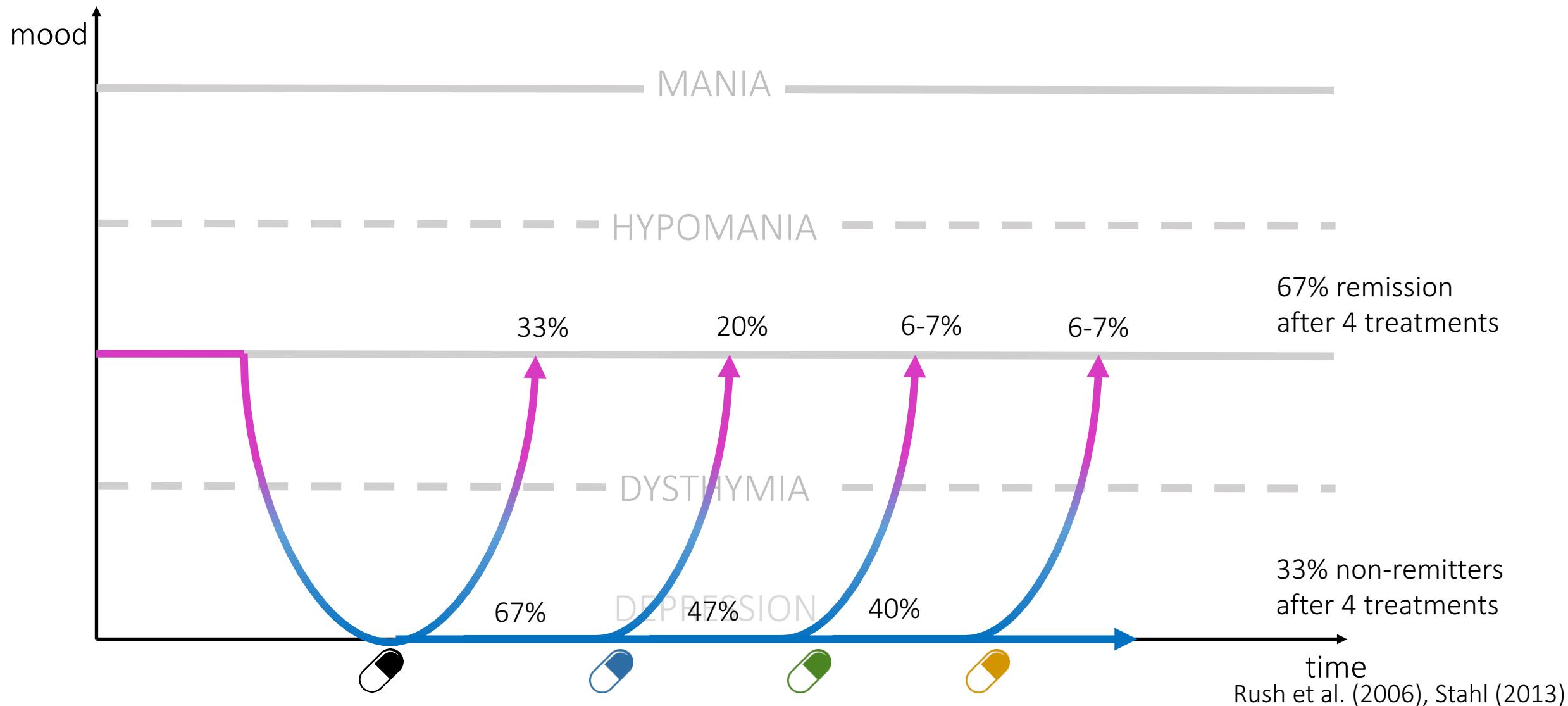
e.g. Aripiprazole

(Antidepressants)

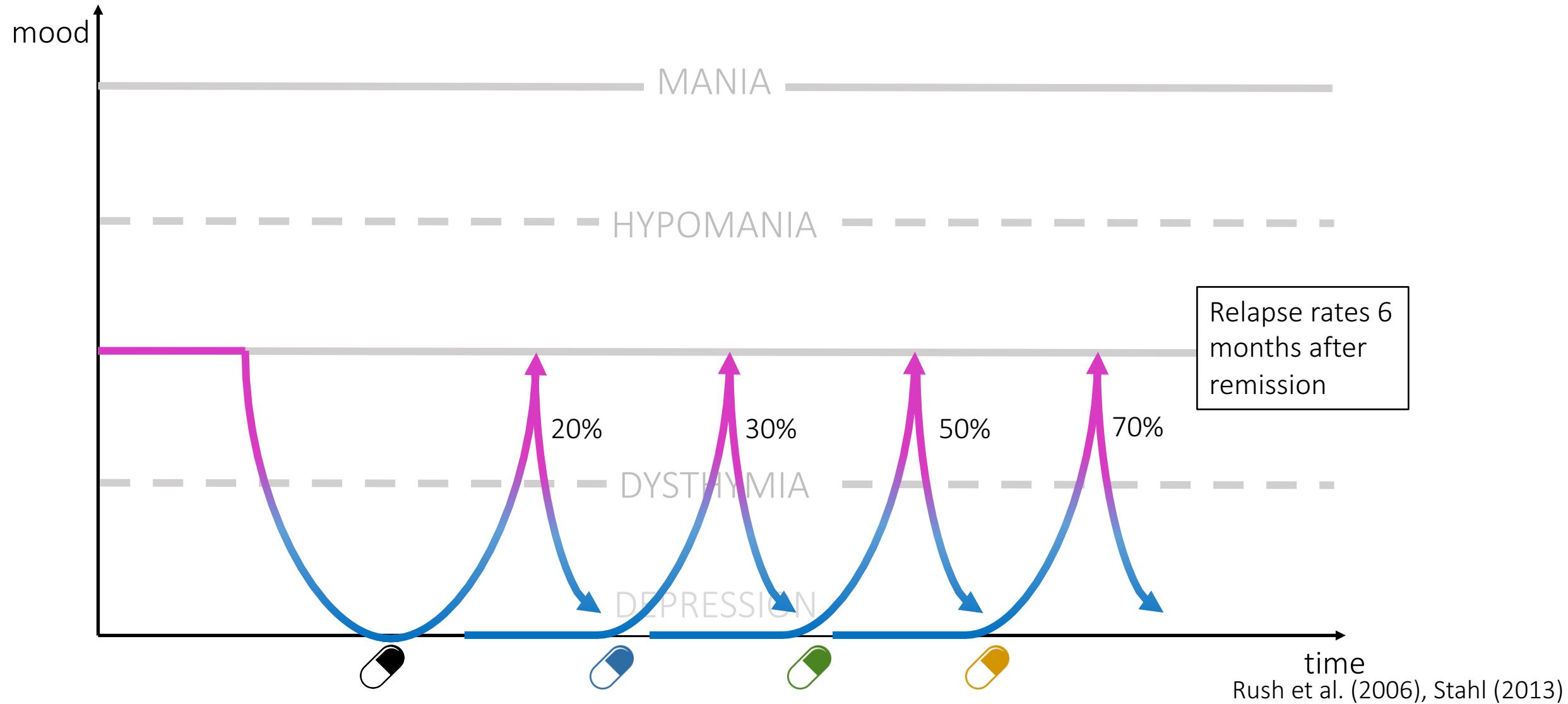
e.g. Escitalopram

CAVE switch risk (Venlafaxine, Reboxetine, TCA)

MDD treatment: pharmacological



MDD treatment: pharmacological



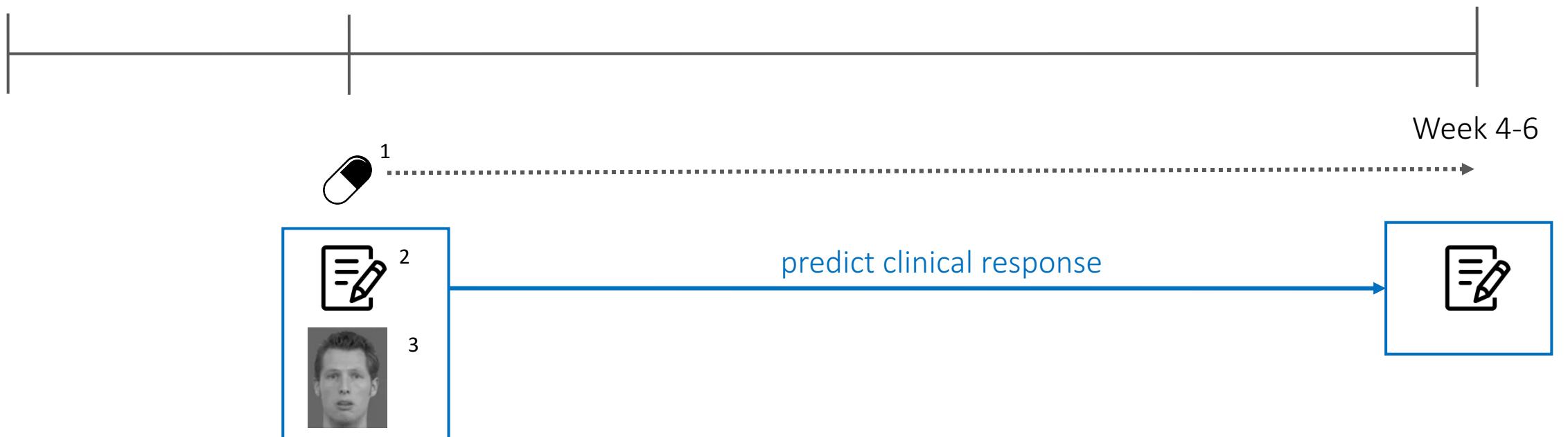
MDD treatment: pharmacological

Recruitment

N = 74 MDD
patients

Baseline Visit

Final Visit
> Response to citalopram

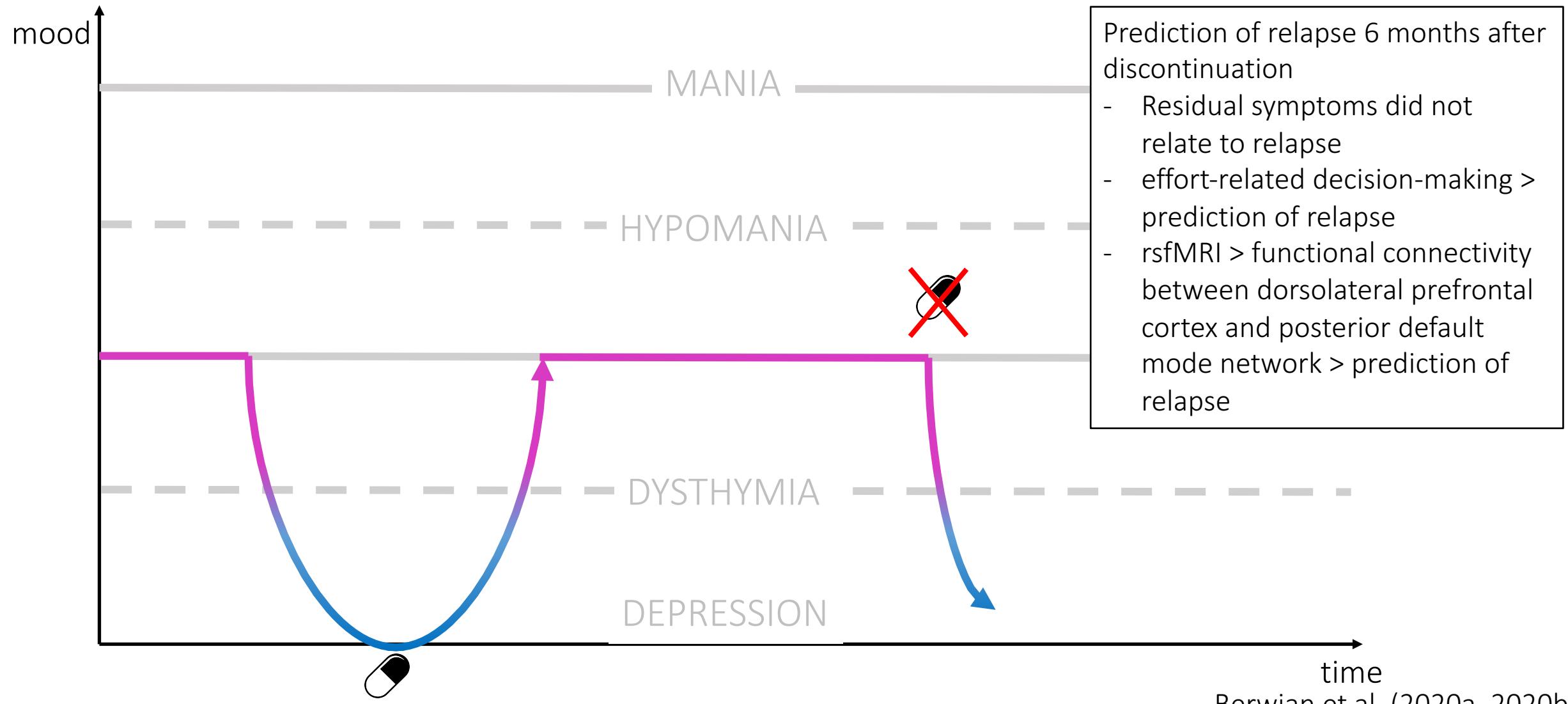


¹ citalopram = medication

² QIDS-SR₁₆ = depressive symptoms

³ face-based emotional recognition task = emotional bias

MDD treatment: discontinuation



MDD treatment: psychotherapy

- 70% of MDD patients prefer psychotherapy over pharmacological treatment
- Alliance-outcome association $r = .278$, $d = .579$
 - > Importance of therapeutic relationship!
- Combined treatment (psychotherapy + medication) is more effective than medication alone

MDD treatment: psychotherapy

CBASP
(McCullough)

Schema-Therapy
(Young)

Behavioural Activation
(Skinner)

Person-Centred Psychotherapy
(Rogers)

Cognitive Behavioural Therapy
(Beck, Skinner, Eysenck ...)

Clarification-oriented Psychotherapy
(Sachse)

Psychodynamic Therapies
(Kernberg, Fonagy, ...)

Mindfulness-Based Cognitive Therapy
(Teasdale, Kabat-Zin, ...)

Interpersonal Psychotherapy
(Sullivan, Klerman & Weissman)

Systemic Psychotherapy
(Ackerman)

Psychoanalysis
(Freud, Breuer, Jung, ...)

Acceptance- & Commitment Therapy
(Hayes)

Emotion-Focused Therapy
(Greenberg & Johnson)

(and many more)

Etiology: Learned Helplessness

Depression = learned behaviour

Recurring lack of control over aversive aspects of environment
→ generalized belief of low self-efficacy / lack of control → depression

Causal attribution of failure
= internal, global, stable

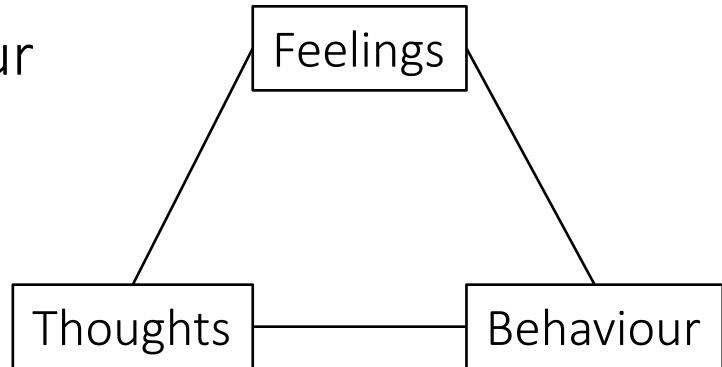


Abramson, Seligman & Teasdale (1978), see also Stephan et al. (2016)

Cognitive Behavioural Therapy



Focus of interventions: maladaptive thoughts and behaviour



Vincent's mood journal

Situation/Trigger	Automatic Thoughts <i>How true? 0-100%</i>	Mood / Feelings <i>How strong? 0-100</i>	Alternative Thoughts <i>How true? 0-100%</i>
My co-worker did not greet me this morning.	"I am unlikeable" – 100 "If I worked harder, she would like me" – 90	Sadness – 90 Guilt – 90 Shame – 90	"Maybe she did not pay attention" – 60 "Maybe she was busy doing/thinking of something else" – 60 "Maybe she is not a morning person" – 80
...

Future directions / open questions

- Medication: individualized treatment recommendations
- Predictions: e.g. risk of relapse / recurrent episode
- Diagnostics: differential diagnosis, comorbidities
- Suicidality: e.g. risk predictions
- Mechanisms of psychotherapy

Tests must be practical and acceptable in clinical context!



Thank you



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